

## RESEARCH AND DEVELOPMENT, NEUCHATEL - QUARTERLY REPORT

DIVISION : RESEARCH  
SUBJECT TITLE : HYDRA - ETS  
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### PROJECT HYDRA

#### OBJECTIVE

Obtain an analytical data-base on ETS through indoor air monitoring experiments.

#### STATUS

Complement of POLDI project

An ETS survey based on controlled but realistic smoking sessions was performed. Merging its results with those from project POLDI [1] and some single-cigarette sidestream yield determinations [2] will provide the experimental data for preparing a paper entitled "Influence of environmental conditions and smoke dilution on the measured levels of ETS components" [3].

To this effect 30 smoking sessions were performed in an office of the R&D building. Two experimental cigarettes (C20 and C50) [1] were studied. Smoking was performed both by humans and by machine.

The rate of room air exchange was varied.

Most experiments consisted in measuring the initial concentration and the decay rate of a series of ETS components following the simultaneous smoking of 2 to 4 cigarettes. In addition, several sessions were performed where the ETS concentration was kept at a steady level by maintaining a constant smoke generation rate. In those experiments, sampling times could be extended to as long as 5 hours, and extremely low detection limits can be achieved.

The aim of this study is to point at the inherent difference that prevails between sidestream smoke and ETS, and in particular to criticize some modelisations of ETS exposure that provide grossly inflated results [4].

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### PROJECT ETS

#### OBJECTIVE

Support S&T in the organisation and supervision of sub-contracted studies on ETS; test the analytical procedures of these external laboratories through collaborative studies.

#### STATUS

Collaborative study with the Institut für Biopharmazeutische Microanalytik (Dr G.B. Neurath, Hambourg). The method for measuring nicotine in air which is used by this institute was tested following their recommendations. The analysis of spiked sampling tubes will be performed as soon as they are received. It is already clear that this method is more cumbersome and less precise than the one proposed by the CORESTA Task-Force [5].

#### Iso-ion air-cleaner

An intermediate report providing an estimation of ETS gas and particulate phase elimination by the "Iso-ion" air cleaner was issued. Completion of this study was delayed for priority reasons [3].

#### PLANS

- Finalize the POLDI follow-up and submit a paper for publication.
- Finalize the Iso-ion air-cleaner estimation.
- Finalize the on-going collaborative studies.
- Begin the environmental monitoring of volatile organic compounds.

#### REFERENCES

- [1] Blake-C.J. and Piade-J.J., Final report of Poldi Project, Quantitative Evaluation Of Cigarette Sidestream Smoke Under Controlled Experimental Conditions, Neuchâtel, May 1989.
- [2] Bindler-G., Method for single cigarette analysis, Method in preparation.
- [3] Gerber-C., Quarterly Report January-March 1990.
- [4] Repace-J.L., Indoor concentrations of environmental tobacco smoke : Models dealing with effects of ventilation and room size, International Agency for Research on Cancer, Vol. 9, Passive Smoking, 1987.

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RESEARCH AND DEVELOPMENT, NEUCHATEL - QUARTERLY REPORT

- [5] Ogden-M.W. and Conner-J.M., Methods for Nicotine, Respirable Suspended Particles and Ultraviolet Particulate Matter in Environmental Tobacco Smoke : Collaborative Study, presented at the 41st Tobacco Chemists' Research Conference, Oct. 4-7, 1987, Greenboro NC.

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